TWO DOG INVENTORY SOFTWARE
INSTRUCTIONS AND INFORMATION FOR USE
ON STATE FORESTS
March 2002
Revised October 2006

Two Dog Inventory Software is a very complex and adaptive inventory program. Though it initially had several problem areas, which seem to have been mostly solved with software upgrades, its broad-based applicability provides an excellent opportunity for integrated resource inventory.

The Two Dog software paperwork you received contains a phone number for technical support. To avoid having several properties calling for technical support for the same problem, contact other properties or the C.O. Property Specialist instead to see if others are having the same problem. Another property may already have found a way to work around the problem. If the problem appears to be a software problem, we will make one call to tech support to get the solution for everyone. It is also highly possible that the problem could be with the method sets that were created. The C.O. Property Specialist will have to work on these problems.

Initially the methods were primarily set up as a replacement for the Tally Scheme 6 inventory method. This creates some limitations. As experience with the software has grown, so has the opportunity for taking more advantage of the software capabilities, thereby improving data analysis. Feedback from the field users is critical to determine which direction this evolution takes.

Another goal of this is to standardize data collection across all properties. The software has the capability of merging files, so collected information would have to be the same configuration to be properly merged.

The Two Dog manual printed in 2000 is the most recent available. Retain the older 1999 manual as it contains software key and lock information. The Husky manual only covers the Husky hardware, not Two Dog.

OFFICE DOG
Getting Started
When you open Two Dog on the desktop computer, you will notice an opening window that contains six tab options – File, Field Data, Reports, Options, Help and Exit. You will only be using three of this – File, Field Data, and Reports, to actually create and work with your data. When you eventually decide which reports you wish to have and set a default, you will not even have to use the Reports tab.

File Tab
The first tab to open is the File tab. This is where job files are created, transferred and changed. Two options appear – Open or Create File, and Transfer To/From Field

Computer. Job files are files where field data is collected and entered. These include inventories and harvests.

When Open or Create File is selected, the window that opens initially is on the Open/New tab.   Three other tab options are Import, Merge and Options. For now you only need to work with Open/New and Options. The Import tab is for importing data from other sources. The Merge tab is for merging data, and may be useful. It provides the capability of merging two or more job files.

The Open/New tab contains a job list down the left-hand side, a place to create a file, and a box that briefly describes the current selected job. It also has two buttons toward the bottom that will allow you to recalculate the data in a job, and print default reports without having to go to the Reports tab.

In creating new files, I am requiring the following filename format for tract inventory jobs and timber harvest jobs. The first three digits are the property code, the next two digits are the compartment number, and the last two digits are the tract number. In addition, I am recommending that a final single letter be used to designate the type of information – I for standard inventory, and H for timber harvest tally. One circumstance in which this protocol is not used is when multiple files are created for one job that will be merged into a final job file named as above. There are also some circumstances where job files may be created for other purposes, such as an appraisal on a parcel to be purchased. Properties will create job file names that appropriately identify the job.

The Options tab contains the same job list down the left-hand side that the Open/New tab had. It also has a box for setting the method set to be used for a particular, selected job. The only method set option that will be available is Indiana State Forest. This new method set will handle inventory and timber harvest tally jobs.

The Transfer To/From Field Computer option opens the screen that is used to communicate with the handheld field computer. The Settings button opens a list of settings that allow communication between the desktop computer and the handheld computer. These should already be set by the C.O. Property Specialist. The Handheld Platform should be set to a Husky. PC Comm Port will be set to Port 1 or Port 2, depending on your desktop. PC Speed will be set to 38,400, the Husky default. These three settings are listed across the bottom of the Transfer window.

Once the handheld computer is set to transfer files with the desktop, the Initialize Connection button on the desktop is clicked. This initiates the communication between the desktop and the handheld. Several windows will open briefly conveying the progress of the communication link. Once the link is established two listings will appear. On the right side is the job file listing from the field computer. On the left side is the job file listing in the desktop computer. Between the two lists is a window called Select an Action. Two Dog defaults the action to transferring job files. Clicking the arrow shows a drop down list of other available actions such as transferring a volume table or method

set. Clicking these other actions will initiate related lists from the desktop computer and field computer, making them available for transfer.

Once an Action is selected, the appropriate file on the appropriate list to be transferred is highlighted. This is true whether it is a job file, volume table or method set. Then one of the directional arrows in the middle of the window, indicating the direction of the transfer, will darken indicating it is enabled. Clicking the arrow will then commence the transfer process. Some transfers can only occur in one direction. For example, job files can only be transferred from the field computer to the desktop computer. Method sets should only be transferred from the desktop to the field computer.

If a job file of a particular name already exists on the desktop, and a file of the same name is attempted to be transferred from the field computer, a window will pop-up and ask if the operator wants to overwrite the existing file. If the two files were intended to be different, this protects against eliminating a job file. In other cases, the transfer file from the field computer may be an update of the file on the desktop, so in this case it may be appropriate to overwrite the desktop file.

On the Transfer window, the method set listing for the field computer does not show the method set, but instead lists the individual methods in the set. These methods are listed with little differentiating description other than the final numerical character. They listed as Fielddog.mt1, Fielddog.mt2, Fielddog.mt3, etc. Because of memory limitations, the Husky field computer cannot hold more than one full method set. If there is a method set on the field computer already, and a different method set is to be transferred to the field computer, the existing method set needs to be deleted from the field computer. Unlike job files, method files cannot be deleted on the field computer. It can only be done using the Transfer window on the desktop computer. Under the method file listing for the handheld field computer in the Transfer window is a button for deleting files from the handheld computer. Files in the listing are highlighted and the button clicked to delete the highlighted files.

Field Data Tab

The Field Data Tab, as the name suggests, is for the field data. It contains three options – Tract Data, Stand Data and Point Data. Tract in Two Dog is equivalent to our tract. Stand would be a particular stand type within a tract. For example, mature hardwoods may be one stand, pine another stand, and unmerchantable old field may be a third stand found within one tract. This allows separate analysis of each of the stands to determine condition and prescription needs. Properties will break tracts into stands where appropriate. The stands will be based on distinct differences such as timber types (oak-hickory, pine, bottomland hardwoods), stand age (mature woods, regenerating old field), and use (woods, campground, picnic area, nature preserve). Each stand must have at least two sample points in it in order to be considered a separate stand. An acreage will need to be determined for each stand. This separation of areas into stands allows separate analysis for merchantability, condition, and other features.

The only information that you must collect is Point Data, with one exception. You can ignore Tract Data and Stand Data, except for acreage. However, it is strongly encouraged that you to at least look at them. In the future we will be using parts of them, and would like recommendations from field staff on which information should become the standard to be collected. Many of the data fields under Tract Data and Stand Data either contain drop down lists or allow the creation of drop down lists. These can be customized to meet our system needs. Whatever is chosen will be the same across all properties.

The Tract Data option opens a window from a selected General Tab. This provides a place to insert an ID, which would be the property code, two-digit compartment number and three-digit tract number. A box is available to insert a date. Also there is a memo box for text information.

Other available tabs under Tract Data are Owner, Managers, Access, Location and Comments. The Owner Tab is for landowner information. The Managers Tab is for information on the person managing. The Access Tab may have some utility as it provides a description for access to and within a tract. The Location Tab also has utility as it provides location information for a tract. The Comments Tab provides a box for text comments.

The Stand Data option opens a window from a selected General Tab. This provides a place to specify a stand ID. The stand ID will be the same descriptor as used in the tract management guide to describe the stand. This descriptor can be finalized when the tract management guide is completed. A large box provides a place for a text description of the stand.

Other available tabs under Stand Data are Area, Location, Access, Forest Type, Site Index, Management, Wildlife, and Comments. The Area Tab allows the insertion of the sample acreage, acreage not sampled and total area. The entire tract will be sampled unless it is not physically possible, such as a lake. By breaking out areas such as campgrounds, or unmerchantable old fields as separate stands, the separate analysis available in Two Dog allows keeping the areas separate for analysis, but also combines them for a total tract picture. This tab is where the program gets the acreage for its whole stand calculations. *It is the only place in stand data that you must enter information.* The Location Tab is very similar to the Location Tab under the Tract Option. The Access Tab describes the access to and within the stand. The Forest Type Tab may be one of the first of these that we use since it allows forest type, structure and other attributes to be collected. The Site Index Tab allows the collection of site index information and other site specific attributes. The site index information is beyond what we do, but the other attributes may be useful. The Management Tab allows the insertion of management prescription, guidelines and limitations. The Wildlife Tab allows the collection of wildlife information for the stand. And lastly there is a Comments Tab for text information.

The Point Data option is the current area of emphasis for the data collection. When this option is selected, the window opens to the Tree Data Tab. This is the screen where our standard tree data is entered. Other available tabs in this option are Wildife, Comments, Plants and Summary.

Tree Data

On the Tree Data Tab is a spreadsheet area with headings for the entry of tree data. The headings are Number, Species, DBH, Product, MHt and Defect.

The Number field is a numerical identifier for the trees entered on this point. The program automatically inserts it.

The Species field is the species code using the Purdue species abbreviation system plus some additional species not covered. If a box in this field is highlighted, you can click the mouse right button to get a drop down list of species. A warning will flash if the program does not recognize a code that is entered. If a point has no data, but should be counted as a sample point (a point in a field for example), enter .N (period and capital N) in the species field. A point can be excluded as a sample point, even if it has data, by entering .D (period and capital D) in the species field. See the manual for more information on .N and .D.

The DBH field is the diameter at breast height to the nearest whole inch. This should accept diameters down to one inch. The program should warn you if the entered DBH is outside the specified range for a product (this may depend on the machine).

The Product field is for the two-letter product code. This is very important information because it tells the program what to do with the tree. The cull and snag product classes require completion of information including DBH and height. These are important for some management considerations.

The MHt field is for the merchantable height in logs. Depending on the product code, this log height may be 12 feet or 16 feet. The Purdue Doyle Volume Table for 12-foot logs was retained for all sawtimber trees and veneer trees. The volume unit is board feet. The merchantable height ranges from a half log up to six logs in half log increments. Poles have volume measured in cords, and culls and snags have volume measured in cubic feet. The minimum merchantable height accepted for these is one log. Both of these use volume tables with 16-foot logs. The merchantable height ranges from one log to eight logs in half log increments. The number of logs is entered in the merchantable height field numerically as a whole number without a decimal place. For example, a half log is entered as 5, one log is entered as 10, and two and half logs are entered as 25.

Cull trees and snag trees are considered to have no merchantable volume, therefore they will not accept a defect percentage. For a harvest, if a snag is to be tallied with merchantable volume, it must be treated as a live tree, not a snag.

The Defect field is for the percent defect estimated in the tree. The defect number is entered as whole number. For example, 25 is for 25% defect and 75% sound.

In tallying trees for prime, the following method should be used. Record the prime tree as you would any other tree for Two Dog. It will be listed in the Two Dog totals for volume and number of trees. In harvests, the tree will be tallied the same way, and on notices the volume will be footnoted as "volume in trees with prime volume".

At the bottom of the Tree Data window are three identifiers. One identifier is Point Number. The box identifies the point number the tree data is located in. When entering data for a new point, click the Add button and the program will prompt you to add a new point number. If you want to check existing data, you can use the scroll bar to move among the points.

Another identifier is the Stand Number. If we were using stands, we could specify that a particular inventory point is in an identified stand. This option has great utility because you can change the stand number or even first assign stand numbers after the field information is collected. Point data can be collected in Field Dog without specifying a stand breakdown. Once the data is downloaded onto the desktop, the point data can be brought up and the points can be assigned to various stands in the office.

The last identifier is Method Number. The new Indiana State Forest method set is the only method set available. This eliminates the need to switch method sets depending on whether you are doing harvest tally or inventory, as was the case with the previous method sets. This method set has four methods. A method set is distinguishable by the fact that all methods under it will use similar codes and parameters for species, products and other information. You could identify different methods from the same method set for different points in the tally. For example, if you are converting a pine stand to hardwoods using a clear-cut, you could use point sampling to get the volume and tree number estimates so you do not have to tally every tree. If there is a recent blowdown area within the stand that you cannot use point sampling on, you can use fixed radius plots. You could then specify which method is used on each point, differentiate the points into different stands, assign appropriate stand acreages, and the program would do the calculations accordingly.

The first method is a ten-factor prism inventory method. It can be used for standard tract inventories. It can also be used for harvest tally in some circumstances. This could be a case of a homogeneous pine stand that is being removed completely. Rather than mark and tally every individual tree, the boundary of the removal can be marked, and the harvest area sampled for the sale estimate.

The second method is a tenth-acre fixed radius plot inventory method. It can be used in circumstances when a prism inventory would not suffice. It can be used for harvest tally estimation in circumstances when there is storm damage requiring complete removal and there are many downed trees making prism sampling unworkable.

The third method is the primary method for harvest tally – 100% tally of individual trees. This can be used in the tally of trees marked for timber sales or timber stand improvement.

The fourth method is a twenty-factor prism inventory method. It is currently not for general state forest use. It is currently being studied for possible applications on the state forests.

Other Point Data

Similar to the Tract Data and Stand Data, it is currently not necessary to collect and enter data information in the other tabs under the Point Data option. However, it is recommended to look at them to determine what state forests should be using.

The Wildlife Tab is essentially the same as the Wildlife Tab under Stand Data, but in this case it is tied to a point. Being on a point basis obviously gives it more utility. The Comments Tab is a for text information. The Plants Tab is for sampling plant layers. Since we already do the tree layer, this could be used to add shrub and herbaceous layers. It includes drop down lists and places to create our own lists. The Summary Tab does not appear to allow any data entry. Its use is unknown.

Reports Tab

The Reports Tab is the last of the three tabs that you would need to use to enter and process your data. Calculation of results and printing reports is done under this tab. As stated above, you can avoid coming to this tab once you have default reports set. Calculation and printing can be done by going to the File Tab, choosing the Open/Create option, and working in the New/Open Tab window.

The two options in the Reports Tab are Calculate and Reports. The Calculate option opens a window that shows identified default calculations. Do not change the selected calculations. An exception to this is if you plan to run reports by the 2-inch diameter classes. If this is the case, the calculation option "Round to 2-Inch Classes for Reporting" must be clicked on. Make sure to calculate the data anytime you enter new data or change existing data, otherwise reports you print may be based on old data. At the end of the calculation process is a window that lists, among other things, the name of the file being run. This is a way to ensure the correct file is being run.

The Report option is organized into folders and subfolders. If there is a collection of reports that you find generally useful, you may set that as your default. Then for many uses you may be able to print directly under the File Tab as described above. If you break a tract into stands, you will need to run stand reports to summarize your stands, and tract reports to summarize the entire tract.

Some of the reports that seemed useful are

• Stand Level Tables W/DBH Classes by 1

- Stand and Tract Level Summaries
  - Summary by DBH and Product-Species
  - Stand Summary by Product-Species

- Stand and Tract Level Statistics
  - Stats by Product-Species

The Statistics are interesting because they provide a measure of statistical confidence for the inventory.

The value calculated on these reports can be used to calculate minimum bids. The total value of the harvest trees would need to be reduced to account for a minimum situation and for any other factors affecting sale value. With typical sales, the calculated value would be reduced by ten percent to determine a minimum bid. Sales with other factors such as problem access may require additional adjustments of five or more percent.

Options Tab
The Options Tab has three options, Method Manager, Volume Table Editor, and Install Field Dog. **Do not change anything in these.** They are critical to the operation of this program. They will be standardized through the state forest system. You can look at them however. These are key areas, particularly Method Manager that you should review and provide suggestions for changes.

The Volume Table Editor option has a long list of volume tables to choose from, and has the option of developing a customized table. The Purdue Doyle Volume Table used by state forests has been added to the list of volume tables.

Method Manager
The Method Manager option is the key to program operation. **Make no changes to Method Manager**. Please review it and make recommendations for future changes.

The Method Manager option has a number tabs, only four of which you need to be concerned with – Global Settings, Dog Files, Products Setup, and Tree Inventory. The Global Settings Tab shows the job file name at the top, and lists the method set name selected. Then it gives a number of parameters of the method set.

The new method set, Indiana State Forest has four methods, as described above – 10-factor Point Sampling, tenth-acre Fixed-Radius Plots, 100% Tally, and 20-factor Point Sampling,. The methods have similar prices and products.

The Dog Files Tab contains lists for the whole variety of items in the program. By selecting an attribute, you can select from a list of tables for that attribute. For

example, if Trees is selected, you can look at a species table, a products table, a crown class table and a form class table, among many others. The tables and lists in the Dog Files can be adjusted to meet our needs, based on recommendations.

The Products Setup Tab is where it is decided what to do with the data for a particular tree. This is where it is given a volume and value. Again recommendations for changes are being solicited. For sawtimber in general, the minimum DBH size is the 14-inch size class. Poles are smaller than the 14-inch size class. All veneer minimum sizes are the same as in the manual. There is a minimum DBH size of 16 inches for the higher-grade sawtimber (called Quality Sawtimber). There are no size limits for culls and snags. Because there currently is no way to break a prime tree down into prime and sawtimber parts, it is recommended that prime log volume for sales be tallied as above.

The Tree Inventory Tab is where the decision is made on what inventory information is to be gathered. Selections are made by moving attributes between the On and Off boxes.

FIELD DOG
Field Computer
The Husky MP2500 is a rugged handheld field computer. It is designed, when installed with Field Dog, to allow for the collection of information in the field under varied weather conditions. It is designed to withstand some of the rough handling that would occur with field use, but it is not indestructible. After the data is collected, it can be downloaded directly into the desktop computer to generate reports.

The Husky manual is the reference for this machine. Key elements in the manual discuss the power supply, handling and care of the unit. The manual also has a section for trouble shooting. Among the important sections is information on batteries, hard reset, and rebooting.

Of particular note, properties should always take a set of alkaline batteries with the yellow plastic battery tube in the field when using the Husky in case the rechargeable battery pack runs low. Never open the spring-loaded battery cover in a location (such as in the woods) where it can be readily lost. Make sure that when recharging, the only battery recharged with the supplied charger is the Husky battery stick. If other brand rechargeable batteries are used, recharge them in a charger designed for those batteries. Do not recharge alkaline batteries.

The red (power) key on the Husky keypad turns the computer on and off. The Husky will also shut down automatically if unused after a few minutes. When turned back on, the opening screen will be the last screen showing when it turned off.

On some occasions when batteries run down or the field computer sits off for a long period of time it will go into mode in which a normal power button activation will not be able to start the computer. In these cases a hard reset needs to be done. This is

done by holding down the Escape button, the up-arrow, and the power button at the same time for about five seconds.

Software

   In basic mode, the Husky will provide a prompt C:\> and states to type FD for FieldDog. Typing FD and pressing Enter will initiate Field Dog. There is no reason to move back out of Field Dog. At the Field Dog opening screen, pressing Enter will cause the File Menu to appear. The software operates similar to early DOS desktop PC programs by providing options to select and using Function keys. Options can be selected by scrolling down to the desired option and hitting Enter, or by hitting the number of the option.

File Menu

   The first option under File Menu is New Filename. This is for creating a new job file, either inventory or harvest. When selected, the Filename Selection screen appears and a new filename is requested. Use the same filename parameters as described above. When the filename is set and Enter is hit, several screens will show in progression. First the screen will state it is creating the file. Since there is more than one method in the Indiana State Forest method set, the screen will display the available methods and ask which method the file is to be created with. A method from the list must be selected. The names for the different methods that appear on the Husky unit are not very descriptive, with the only differentiation being the final numerical character. Remember the following:

   Fielddog.mt1 is 10-factor prism point sampling,
   Fielddog.mt2 is tenth acre fixed acre plot sampling,
   Fielddog.mt3 is 100% tally
   And Fielddog.mt4 is 20-factor prism point sampling.

   Once the method is loaded and the file is created, the screen will return to Filename Selection : Enter Filename: (filename). Select OK (press F1) if you are done creating files. The File Menu screen will return. If you are ready to enter data into the new file you can select OK (press F1), which will bring up the main Menu screen.

   The second option under File Menu is Open Existing File. This is for opening an already existing job file. When it is selected a filename list will appear to select from. If there are no job files in memory, a message to that effect will be displayed. When an existing file is selected, a Loading Methods message will appear. When done opening, the screen will return to the File Menu. If you are ready to enter data into the opened file, select OK (press F1), which will bring up the Main Menu screen.

   The third option under File Menu is Transfer File. This is for communicating with the desktop computer, and transferring volume table files, method files, and job files.

The fourth option under File Menu is Compress File. It is described in the manual as compressing files for completed jobs. Before anyone tries this with a critical file, it is recommended that it be tried on test files first.

The fifth option under File Menu is Delete File. This option allows the deletion of job files. Method files and volume table files cannot be deleted under this option.

The sixth and final option under File Menu is System Info. Selection of this brings up a screen with options for Disk Space, Battery Life, and Serial Number.

Main Menu
In the File Menu screen, if OK is selected (press F1), the Main Menu screen will appear. If a job file has been opened or created, its name will appear in the top line.

The first option in Main Menu is File Menu. Selecting this will return the screen back to the File Menu screen.

The second option in Main Menu is Tract Data. This is similar to Tract Data in Office Dog on the desktop computer. Selecting this brings up a screen that gives five options (Owner, Access, Location, Managers, Comments) that can be opened for information collection.

The third option in Main Menu is Stand Data. This is similar to Stand Data in Office Dog on the desktop computer. Selecting this brings up a screen that gives nine options (Change Stand, Area, Access, Location, Forest, Site Index, Wildlife, Management, Comments) that can be opened for information. Similar to the desktop, Area must be opened and acreage entered in order for Two Dog to do the proper calculations. If calculations are not to be done on the field computer, this can be entered later to the job on the desktop computer.

The fourth option in Main Menu is Point Data. This is similar to Point Data in Office Dog on the Desktop. Selecting this brings up several options. The top line on the screen displays the point and stand numbers. The Chg Pt (Change Point) option is for changing to a different point number. The Trees option is for entering tree data such as species, DBH and height. The Plants option is for entering information on the plant communities. The Wildlife option is for entering data about wildlife indicators. The Comments option is self-explanatory.

In the Trees option under Point Data, the change from point to point can be done in two ways. F1 can be used to back out of the Tree data screen and get to the Point Data options screen. Chg Pt (Change Point) can then be selected. This brings up a screen to select the next point number. The stand number for that point can also be selected (for example if going from hardwoods into a pine stand). This would be used if doing nonsequential point numbers.

The easier method if using sequential point numbers is available on the Tree data screen. The lower line of white letters on black give several options for the F keys. F4 will set up the next sequential point number, ready for data entry. The stand number will be the same as the previous point. The F3 key will bring up the previous point data, which can be added to or corrected. If desired, the assignment of points to a stand can be done in the office on Office Dog after all field data is collected and downloaded.

The fifth option in Main Menu is Calculate. This will calculate very basic information and statistics.

The sixth option in Main Menu is Setup Menu. This is for making changes in the settings and method. This should not be changed as it can affect data.

Indiana State Forest Method Set
Product list

VL	Veneer (prime) leave	VH	Veneer (prime) harvest
SL	Sawtimber leave	SH	Sawtimber harvest
QL	Quality Sawtimber leave	QH	Quality Sawtimber harvest
PL	Poles leave	PH	Pole harvest
CL	Cull leave	CH	Cull harvest
NL	Snag leave	NH	Snag harvest
AL	Sapling leave	AH	Sapling harvest

Veneer trees is a misnomer. The term veneer here is really for the designation of prime trees, per the stated grading guide.

Sawtimber trees are those trees in the 12-inch diameter class and larger that are considered to have merchantable sawtimber volume.

Quality sawtimber trees are those sawtimber trees in species that have prime designations that do not quite meet the prime designation, and similar or better trees in those species without a prime option.

Culls are defined as live trees with no merchantable volume. Generally their designation for removal in a harvest is in order for the harvest operation to perform some of the TSI. Poles can be considered culls when they are determined to have essentially no sound volume.

Snags are defined as standing, dead trees. These can be sawtimber size or pole size.

Volume in culls and snags is in cubic feet. There is value in identifying this "lost" volume. Cubic foot measure is a way to keep it separated from sawtimber. If a snag needs to be tallied with merchantable volume, it must be treated as a live tree.

Poles are considered to have no merchantable sawtimber volume. They are trees in the 6-inch diameter class to the 11-inch diameter class. Volume in poles in calculated in cords. Poles with defect that destroys their volume should be considered culls.

Saplings are smaller than the poles but large enough to have DBH. They are not assigned a volume.

Species List and Codes for All Method Sets

BLO	Black Oak	BLG	Blackgum	EAH	Eastern Hemlock
REO	Northern Red Oak	SWG	Sweetgum	BLS	Black Spruce
SCO	Scarlet Oak	LAA	Largetooth Aspen	WHS	White Spruce
BJO	Blackjack Oak	QUA	Quaking Aspen	NOS	Norway Spruce
NPO	Northern Pin Oak	COT	Eastern Cottonwood	TAM	Tamarack
PIO	Pin Oak	BAP	Balsam Poplar	OTC	Other Conifers
SHO	Shingle Oak	COF	Kentucky Coffeetree	WIE	Winged Elm
ZSO	Shumard Oak	SYC	American Sycamore	ZYB	Yellow Buckeye
CBO	Cherrybark Oak	SAS	Sassafras		
ORO	Other Red Oak	PER	Persimmon		
WHO	White Oak	PAB	Paper Birch		
CHO	Chestnut Oak	RIB	River Birch		
ZCO	Chinkapin Oak	YEB	Yellow Birch		
BUO	Bur Oak	OHB	Ohio Buckeye		
POO	Post Oak	CAT	Catalpa		
SWO	Swamp White Oak	BLL	Black Locust		
XSO	Swamp Chestnut Oak	HOL	Honeylocust		
OWO	Other White Oak	ZBW	Black Willow		
BIH	Bitternut Hickory	OSO	Osage-orange		
MOH	Mockernut Hickory	DOG	Dogwood		
PIH	Pignut Hickory	REB	Redbud		
SHH	Shagbark Hickory	PAP	Paw Paw		
ZSH	Shellbark Hickory	ZRM	Red Mulberry		
PEC	Pecan	IRO	Ironwood		
SUM	Sugar Maple	HAW	Hawthorn		
REM	Red Maple	BLB	Bluebeech		
SIM	Silver Maple	AIL	Ailanthus		
BOX	Boxelder	PAU	Paulownia		
YEP	Yellow-poplar	YEL	Yellowwood		
CUC	Cucumbertree	OTH	Other Hardwoods		
BLA	Black Ash	JAP	Jack Pine		
ZBA	Blue Ash	LOP	Loblolly Pine		
GRA	Green Ash	PIP	Pitch Pine		
WHA	White Ash	REP	Red Pine		
BLW	Black Walnut	SCP	Scots Pine		
BUT	Butternut	SHP	Shortleaf Pine		
BLC	Black Cherry	VIP	Virginia Pine		
AME	American Elm	WHP	Eastern White Pine		
REE	Red Elm	OTP	Other Pine		
ROE	Rock Elm	ERC	Eastern Redcedar		
HAC	Hackberry	NWC	Northern White-cedar		
AMB	American Beech	BAC	Baldcypress		
BAS	Basswood	BAF	Balsam Fir		